



## SEQUENCE LISTING

COPY OF PAPERS  
ORIGINALLY FILED

<110> Rothschild, Max  
Larsen, Niels  
Kim, Kwan

<120> Melanocortin-4 Receptor Gene and Use as a Genetic Marker for Fat Content,  
Weight Gain, and/or Feed Consumption in Animals

<130> ISURF 2413

<140> 09/380,419

<141> 2000-07-24

<160> 26

<170> PatentIn version 3.0

<210> 1

<211> 746

<212> DNA

<213> Sus scrofa

<220>

<221> variation

<222> (678)..(678)

<223> G/A

<400> 1

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cggacgcaca gagtttcaca gtgaatattg ataatgtcat tgactcagtg atctgtagct	180
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gatatctggc agtctgcacg gtgtcgggtg tttgttcat catttactca gatagcagt	360
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cccagaatcc atactgtgtg tggttcatgt ctcaatttaa tttgtatctc atctgatca	660
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TECHNICAL CENTER 2800

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 <213> Homo sapiens

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 ttatcatcac cctattaaac agtacagata cggatgcaca gagtttcaca gtgaatattg 180  
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 caattgcagt ggacaggtac ttactatct tctatgctct ccagtaccat aacattatga 300  
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 atgcactccg gagtcaagaa ctgaggaaaa ccttcaaaga gatcatctgt tgctatcccc 780  
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<220>  
 <221> misc\_feature  
 <223> "X" can be any amino acid

<400> 3  
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 Leu Leu Glu Asn Ile Leu Val Ile Val Ala Ile Ala Lys Asn Lys Asn  
 20 25 30  
 Leu His Ser Pro Met Tyr Phe Phe Ile Cys Ser Leu Ala Val Ala Asp  
 35 40 45  
 Met Leu Val Ser Val Ser Asn Gly Ser Glu Thr Ile Ile Ile Thr Leu

50	55	60
Leu Asn Ser Thr Asp Thr Asp Ala Gln Ser Phe Thr Val Asn Ile Asp 65 70 75 80		
Asn Val Ile Asp Ser Val Ile Cys Ser Ser Leu Leu Ala Ser Ile Cys 85 90 95		
Ser Leu Leu Ser Ile Ala Val Asp Arg Tyr Phe Thr Ile Phe Tyr Ala 100 105 110		
Leu Gln Tyr His Asn Ile Met Thr Val Lys Arg Val Gly Ile Ser Ile 115 120 125		
Ser Cys Ile Trp Ala Ala Cys Thr Val Ser Gly Ile Leu Phe Ile Ile 130 135 140		
Tyr Ser Asp Ser Ser Ala Val Ile Ile Cys Leu Ile Thr Met Phe Phe 145 150 155 160		
Thr Met Leu Ala Leu Met Ala Ser Leu Tyr Val His Met Phe Leu Met 165 170 175		
Ala Arg Leu His Ile Lys Arg Ile Ala Val Leu Pro Gly Thr Gly Ala 180 185 190		
Ile Arg Gln Gly Ala Asn Met Lys Gly Ala Ile Thr Leu Thr Ile Leu 195 200 205		
Ile Gly Val Phe Val Val Cys Trp Ala Pro Phe Phe Leu His Leu Ile 210 215 220		
Phe Tyr Ile Ser Cys Pro Gln Asn Pro Tyr Cys Val Cys Phe Met Ser 225 230 235 240		
His Phe Asn Leu Tyr Leu Ile Leu Ile Met Cys Asn Ser Ile Ile Asp 245 250 255		
Pro Leu Ile Tyr Ala Leu Arg Ser Gln Glu Leu Arg Lys Thr Phe Lys 260 265 270		
Glu Ile Ile Cys Cys Tyr Pro Leu Gly Gly Leu Cys Asp Leu Ser Ser 275 280 285		
Arg Tyr Ala Pro Pro Glu Asn Asp Ile Xaa Val Ile Cys Asn Phe Ile 290 295 300		
Asp Glu Asn Thr Ile Ala Leu 305 310		

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 Thr Leu Leu Asn Ser Thr Asp Thr Asp Ala Gln Ser Phe Thr Val Asn  
 35 40 45  
 Ile Asp Asn Val Ile Asp Ser Val Ile Cys Ser Ser Leu Leu Ala Ser  
 50 55 60  
 Ile Cys Ser Leu Leu Ser Ile Ala Val Asp Arg Tyr Phe Thr Ile Phe  
 65 70 75 80  
 Tyr Ala Leu Gln Tyr His Asn Ile Met Thr Val Lys Arg Val Gly Ile  
 85 90 95  
 Ile Ile Ser Cys Ile Trp Ala Val Cys Thr Val Ser Gly Val Leu Phe  
 100 105 110  
 Ile Ile Tyr Ser Asp Ser Ser Ala Val Ile Ile Cys Leu Ile Thr Val  
 115 120 125  
 Phe Phe Thr Met Leu Ala Leu Met Ala Ser Leu Tyr Val His Met Phe  
 130 135 140  
 Leu Met Ala Arg Leu His Ile Lys Arg Ile Ala Val Leu Pro Gly Thr  
 145 150 155 160  
 Gly Thr Ile Arg Gln Gly Ala Asn Met Lys Gly Ala Ile Thr Leu Thr  
 165 170 175  
 Ile Leu Ile Gly Val Phe Val Val Cys Trp Ala Pro Phe Phe Leu His  
 180 185 190  
 Leu Ile Phe Tyr Ile Ser Cys Pro Gln Asn Pro Tyr Cys Val Cys Phe  
 195 200 205  
 Met Ser His Phe Asn Leu Tyr Leu Ile Leu Ile Met Cys Asn Ser Ile  
 210 215 220  
 Ile Asn Pro Leu Ile Tyr Ala Leu Arg Ser Gln Glu Leu Arg Lys Thr  
 225 230 235 240  
 Phe Lys Glu Ile Ile Cys Cys Tyr  
 245

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<400> 7  
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<210> 8  
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<400> 8  
 cattatgaca gttaagcgg 19

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<210> 11  
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Ile Asp Pro Leu Ile Tyr Ala Leu  
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<210> 12  
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<212> PRT  
<213> Homo sapiens

<400> 12

Met Ser His Phe Asn Leu Tyr Leu Ile Leu Ile Met Cys Asn Ser Ile  
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Ile Asp Pro Leu Ile Tyr Ala Leu  
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<210> 13  
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<212> PRT  
<213> Rattus norvegicus

<400> 13

Met Ser His Phe Asn Leu Tyr Leu Ile Leu Ile Met Cys Asn Ala Val  
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Ile Asp Pro Leu Ile Tyr Ala Leu  
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<210> 14  
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Ile Asp Pro Leu Ile Tyr Ala  
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<213> bovine

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Met Ser His Phe Asn Met Tyr Leu Ile Leu Ile Met Cys Asn Ser Val  
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Ile Asp Pro Leu Ile Tyr Ala  
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<210> 16  
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Met Ser Leu Phe Gln Val Asn Gly Val Leu Ile Met Cys Asn Ala Ile  
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Ile Asp Pro Phe Ile Tyr Ala Leu  
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<210> 17

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Ala His Phe Asn Thr Tyr Leu Val Leu Ile Met Cys Asn Ser Val Ile  
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Asp Pro Leu Ile Tyr Ala  
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<210> 18

<211> 22

<212> PRT

<213> Mouse

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Ala His Phe Asn Thr Tyr Leu Val Leu Ile Met Cys Asn Ser Val Ile  
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Asp Pro Leu Ile Tyr Ala  
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<210> 19

<211> 23

<212> PRT

<213> Homo sapiens

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Met Asp Pro Leu Ile Tyr Ala  
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<210> 20

<211> 22

<212> PRT

<213> Homo sapiens

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Ser Tyr Phe Asn Leu Phe Leu Ile Leu Ile Ile Cys Asn Ser Val Val  
1 5 10 15

Asp Pro Leu Ile Tyr Ala  
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<210> 21  
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<212> PRT  
<213> bovine

<400> 21

Leu Ala Tyr Glu Lys Phe Phe Leu Leu Leu Ala Glu Phe Asn Ser Ala  
1 5 10 15

Met Asn Pro Ile Ile Tyr Ser Tyr Arg  
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<400> 22

Phe Leu Leu Leu Ala Glu Ala Asn Ser Leu Val Asn Ala Ala Val Tyr  
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Ser Cys Arg

<210> 23  
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Val Phe Ala Phe Cys Ser Met Leu Cys Leu Leu Asn Ser Thr Val Asn  
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Pro Leu Ile Tyr Ala Leu  
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<210> 24  
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<400> 24

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Val Ile Tyr Thr Ile  
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<210> 25



<211> 22  
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<213> Rattus norvegicus

<400> 25

Phe Asp Phe Val Val Ile Leu Thr Tyr Ala Asn Ser Cys Ala Asn Pro  
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Ile Leu Tyr Ala Phe Leu  
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<210> 26  
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<212> PRT  
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<400> 26

Leu Ala Tyr Ser Asn Ser Ser Val Asn Pro Ile Ile Tyr Ala Phe Leu  
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